
Shrinky-dink hanging drops: a simple way to form and culture embryoid bodies.

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Public Summary:

Scientific Abstract:

Embryoid bodies (EB) are aggregates of embryonic stem cells. The most common way of creating these aggregates is the hanging drop method, a laborious approach of pipetting an arbitrary number of cells into well plates. The interactions between the stem cells forced into close proximity of one another promotes the generation of the EBs. Because the media in each of the wells has to be manually exchanged every day, this approach is manually intensive. Moreover, because environmental parameters including cell-cell, cell-soluble factor interactions, pH, and oxygen availability can be functions of EB size, cell populations obtained from traditional hanging drops can vary dramatically even when cultured under identical conditions. Recent studies have indeed shown that the initial number of cells forming the aggregate can have significant effects on stem cell differentiation. We have developed a simple, rapid, and scalable culture method to load pre-defined numbers of cells into microfabricated wells and maintain them for embryoid body development. Finally, these cells are easily accessible for further analysis and experimentation. This method is amenable to any lab and requires no dedicated equipment. We demonstrate this method by creating embryoid bodies using a red fluorescent mouse cell line (129S6B6-F1).

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